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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LEWIS, JONATHAN V

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/527,125	Applicant(s) BOYCE ET AL.	
	Examiner JONATHAN LEWIS	Art Unit 2425	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-22 is/are rejected.
- 7) ☒ Claim(s) 4-9, 16 and 18-21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This office action is in response to applicant's amendment filed July 13, 2009. Claims 1, 3-22 are still pending in the present application. **This action is made FINAL.**

Response to Arguments

Applicant's arguments filed July 13, 2009 have been fully considered but they are not persuasive.

Applicant's central argument relates to the use of the reference Aharoni et al. US Pat. No. 6,014,694. Applicant states that Aharoni does not disclose the feature of "generating at least two different bit rate representations of each program." Examiner respectfully disagrees. The amount of compression of the frames dictates the number of bits, and the selected levels for the frame rates to be sent at are in fact the different bit rate representations of each program. The bit rate is selected based upon the available bandwidth as shown in Fig. 12. Figures 5, 6, and 7 show the Key, P, and B frames, respectively, and their 5 associated different bit rate representations. Therefore, examiner maintains his rejection.

Allowable Subject Matter

Claims 4-9, 18-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Objections

Claim 16 is objected to because of the following informalities: the claim was previously cancelled, and contains redundant features incorporated in independent claim 10, which it depends from. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aharoni et al. (US Pat. No. 6,014,694) in view of Kukic (US PG Pub. No. 2003/0169780).

Regarding claim 1, Aharoni et al. teaches a method for transmitting a plurality of pre-coded programs having different bit rates across a fixed bandwidth channel (Abstract), comprising the steps of: generating at least two different bit rate representations of each program (col. 3, lines 9-17 disclose the generation of a plurality of bit rate representations).

Aharoni et al. teaches all the claim limitations as stated above, except generating for each program a lowest bit rate representation having a peak bit rate not greater than C/P where C is the total channel capacity in time T and P is the total number of programs.

However, Kukic teaches generating for each program a lowest bit rate representation having a peak bit rate not greater than C/P where C is the total channel capacity in time T and P is the total number of programs (page 3, 0025-0027, wherein a link is considered a program).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to use, to generate a lowest bit rate for a capacity over a given time period, in order to calculate the optimum data rate for a group of data, which prevents data loss.

Aharoni et al. in view of Kukic teaches all the claim limitations as stated above, except providing control information at each of a plurality of successive time windows T for each representation of each program, the control information for each successive window indicating a bit rate and quality measure for a representation of a corresponding program; and during each time window T , selecting a representation for each program such to maximize the quality of the selected representations while not exceeding a total available capacity for the channel.

However, Aharoni et al. teaches providing control information at each of a plurality of successive time windows T for each representation of each program (col. 2, lines 29-43 discloses the control information provided for multiple time windows), the control information for each successive window indicating a bit rate and quality measure for a representation of a corresponding program (Fig. 10 discloses the bit rate for a time period, and the quality is indicated by the frame rate disclosed in col. 7, lines 1-4); and during each time window T , selecting a representation for each program such to

maximize the quality of the selected representations while not exceeding a total available capacity for the channel (col. 6, line 61 – col. 7, line 6).

Regarding claim 11, Aharoni et al. teaches the system according to claim 10 wherein the generating means and control information providing means collectively comprise: a plurality of multirate stream generators, each associated with a corresponding one of the plurality of pre-coded programs (Fig. 1, 14 shows one stream generator; Fig. 15, 212 shows another multirate stream generator).

Regarding claim 12, Aharoni et al. teaches the system according to claim 10 wherein the generating means and control information providing means collectively comprise: a multirate video encoder for encoding at least two bit rate representations of each pre-coded program (col. 6, lines 46-50).

Regarding claim 13, Aharoni et al. teaches the system according to claim 10 wherein the generating means and control information providing means collectively comprise: a multirate video encoder for encoding at least two bit rate representations of each pre-coded program (col. 6, lines 46-50); and a plurality of transport packetizers, each serving to packetize the bit rate presentations for each pre-coded program (Fig. 9, 102).

System claim 10 is rejected for the same reasons as discussed in the corresponding method claims above.

Claims 3 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aharoni et al. (US Pat. No. 6,014,694) in view of Kukic (US PG Pub. No. 2003/0169780) in further view of Zhang et al. (US PG Pub. No. 2002/0010938).

Regarding claim 3, Aharoni et al. in view of Kukic teaches all the claim limitations as stated above, except the step of providing the control information further comprises the step of establishing the peak signal-to-noise ratio (PSNR) as the quality measure embodied in the control information.

However, Zhang et al. teaches the step of providing the control information further comprises the step of establishing the peak signal-to-noise ratio (PSNR) as the quality measure embodied in the control information (page 7, 0104).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to use, to establish the peak signal-to-noise ratio as the quality measure in the control information, in order to have a base level, with which comparisons can be made while making determinations about the quality adaptation of a streaming video, to optimize the best quality available in consideration to the amount of bandwidth available in a network.

System claim 17 is rejected for the same reasons as stated above in the corresponding method claim.

Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aharoni et al. (US Pat. No. 6,014,694) in view of Kukic (US PG Pub. No. 2003/0169780) in further view of Krishnamurthy et al. (US Pat. No. 6,665,872).

Regarding claim 14, Aharoni et al. in view of Kukic teaches all the claim limitations as stated above, except the selecting means includes a static multiplexer.

However, Krishnamurthy et al. teaches the selecting means includes a static multiplexer (Fig. 1, 114).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to use, to select with a static multiplexer, in order to improve the efficiency of bandwidth usage.

Regarding claim 15, Aharoni et al. in view of Kukic teaches all the claim limitations as stated above, except the selecting means comprises: a static multiplexer; and a transport packetizer for packetizing the selecting representation.

However, Krishnamurthy et al. teaches the selecting means comprises: a static multiplexer (Fig. 1, 114); and a transport packetizer for packetizing the selecting representation (col. 6, lines 17-31).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to use, to select with a static multiplexer and packetize the selection, in order to improve the efficiency of bandwidth usage.

Claims 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aharoni et al. (US Pat. No. 6,014,694) in view of Kukic (US PG Pub. No. 2003/0169780) in further view of Laksono et al. (US PG Pub. No. 2003/0046704).

Regarding claim 22, Aharoni et al. in view of Kukic teaches all the claim limitations as stated above, except a weighted average is applied to provide different classes of service for different viewers.

However, Laksono et al. teaches a weighted average is applied to provide different classes of service for different viewers (Fig. 5).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to use, to apply a weight to provide different classes of

service, in order to vary the rates of video-on-demand based on congestion of the network, which will maximize profitability of video service providers.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Lyles et al. US Pat. No. 5,917,822
- b. Adams et al. US Pat. No. 6,124,878
- c. Seaholtz et al. US Pat. No. 6,246,695
- d. Song et al. US PG Pub. No. 2002/0157103
- e. Lin et al. US Pat. No. 6,738,980
- f. Pinder US PG Pub. No. 2003/0002577
- g. Liljeryd et al. US Pat. No. 6,680,972
- h. Ducharme et al. US Pat. No. 7,486,732
- i. Kukic US PG Pub. No. 2003/0169780
- j. Mihara et al. US PG Pub. No. 2004/0196907
- k. Li et al. US Pat. No. 7,337,231

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN LEWIS whose telephone number is (571)270-3233. The examiner can normally be reached on Mon - Fri 7:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Pendleton can be reached on (571) 272-7527. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brian T. Pendleton/
Supervisory Patent Examiner, Art Unit 2425